Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1. (Original) A method for identifying a compound that modulates cell cycle arrest, the method comprising the steps of:

(i) contacting a cell comprising a target polypeptide selected from the group consisting of BRCA-1-Associated Protein-1 (BAP-1), Nuclear Protein 95 (NP95), Fanconi anemia group A protein (FANCA), DEAD/H box polypeptide 9 (DDX9), insulin-like growth factor 1 receptor (IGF1R), ubiquitin-conjugating enzyme E2 variant 1 (UBE2V1), aldehyde dehydrogenase, pyruvate kinase, glucose-6-phosphate dehydrogenase, HCDR-3, DEAD/H box polypeptide 21 (DDX21), serine threonine kinase 15 (ARK2), transmembrane 4 superfamily member 1, or ERCC1, or fragment thereof with the compound, the target polypeptide encoded by a nucleic acid that hybridizes under stringent conditions to a nucleic acid encoding a polypeptide having an amino acid sequence a sequence selected from the group consisting of SEQ ID NO:2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, and 28; and

(ii) determining the chemical or phenotypic effect of the compound upon the cell comprising the target polypeptide or fragment thereof, thereby identifying a compound that modulates cell cycle arrest.

2. (Original) The method of claim 1, wherein the chemical or phenotypic effect is determined by measuring an activity selected from the group consisting of: helicase activity, receptor tyrosine kinase activity, ubiquitination, ligase, ubiquitin hydrolase activity, ubiquitin ligase activity, receptor binding activity, receptor cross-linking activity, protease, and endonuclease.

3. (Original) The method of claim1, wherein the chemical or phenotypic effect is determined by measuring cellular proliferation.

4. (Original) The method of claim 3, wherein the cell cycle arrest is measured by assaying DNA synthesis or fluorescent marker level.

5. (Original) The method of claim 4, wherein DNA synthesis is measured by 3H thymidine incorporation, BrdU incorporation, or Hoescht staining.

6. (Original) The method of claim 4, wherein the fluorescent marker is selected from the group consisting of a cell tracker dye or green fluorescent protein.

7. (Original) The method of claim 1, wherein modulation is activation of cell cycle arrest.

8. (Original) The method of claim 1, wherein modulation is activation of cancer cell cycle arrest.

9. (Original) The method of claim 1, wherein the host cell is a cancer cell.

10. (Original) The method of claim 9, wherein the cancer cell is a breast, prostate, colon, or lung cancer cell.

11. (Original) The method of claim 9, wherein the cancer cell is a transformed cell line.

12. (Original) The method of claim 11, wherein the transformed cell line is PC3, H1299, MDA-MB-231, MCF7, A549, or HeLa.

13. (Original) The method of claim 9, wherein the cancer cell is p53 null or mutant.

14. (Original) The method of claim 9, wherein the cancer cell is p53 wild-type.

15. (Original) The method of claim 1, wherein the polypeptide is recombinant.

16. (Original) The method of claim 1, wherein the polypeptide is encoded by a nucleic acid comprising a sequence of SEQ ID NO:1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, or 27.

17. (Original) The method of claim 1, wherein the compound is an antibody.

18. (Original) The method of claim 1, wherein the compound is an antisense molecule.

19. (Original) The method of claim 1, wherein the compound is an RNAi molecule.

20. (Original) The method of claim 1, wherein the compound is a small organic molecule.

21. (Original) The method of claim 1, wherein the compound is a peptide.

22. (Original) The method of claim 21, wherein the peptide is circular.

23. (Currently amended) A method for identifying a compound that modulates cell cycle arrest, the method comprising the steps of:

(i) contacting the compound with a ~~target polypeptide selected from the group consisting of BRCA-1-Associated Protein-1 (BAP-1), Nuclear Protein 95 (NP95),~~ Fanconi anemia group A protein (FANCA)~~, DEAD/H box polypeptide 9 (DDX9), insulin-like growth factor-1 receptor (IGF1R), ubiquitin-conjugating enzyme E2 variant 1 (UBE2V1), aldehyde dehydrogenase, pyruvate kinase, glucose-6-phosphate dehydrogenase, HCDR-3, DEAD/H box polypeptide 21 (DDX21), serine threonine kinase 15 (ARK2), transmembrane 4 superfamily member 1, or ERCC1, or fragment thereof, the target polypeptide encoded by a nucleic acid that hybridizes under stringent conditions to a nucleic acid encoding a~~ polypeptide ~~having an amino acid sequence a sequence selected from the group consisting of~~ with 95% identity to SEQ ID NO: 6 ~~2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, and 28~~; and

(ii) determining the physical effect of the compound upon the ~~target~~ FANCA polypeptide~~; and~~

~~(iii) determining the chemical or phenotypic effect of the compound upon a cell comprising the target FANCA polypeptide or fragment thereof~~, thereby identifying a compound that modulates cell cycle arrest.

24-35. (Cancelled)

36. (New) The method of claim 23, wherein the chemical or phenotypic effect is determined by measuring aldehyde dehydrogenase activity.

37. (New) The method of claim 23, further comprising the step of determining the chemical or phenotypic effect of the compound upon a cell comprising the target FANCA polypeptide or fragment thereof.

38. (New) The method of claim 37, wherein the chemical or phenotypic effect upon the cell is determined by measuring cellular proliferation.

39. (New) The method of claim 38, wherein the cellular proliferation is measured by assaying DNA synthesis or fluorescent marker level.

40. (New) The method of claim 39, wherein DNA synthesis is measured by ^{3}H thymidine incorporation, BrdU incorporation, or Hoescht staining.

41. (New) The method of claim 39, wherein the fluorescent marker is selected from the group consisting of a cell tracker dye or green fluorescent protein.

42. (New) The method of claim 37, wherein the chemical or phenotypic effect of the compound upon the cell is activation of cell cycle arrest.

43. (New) The method of claim 23, wherein the polypeptide is recombinant.

44. (New) The method of claim 23, wherein the FANCA polypeptide is encoded by a nucleic acid comprising a sequence with 95% identity to SEQ ID NO:5.